

	Type	L #	Hits	Search Text	DBs	Time Stamp
1	BRS	L1	0	shelley.in. and cheg.in.	USPAT	2004/03/09 09:02
2	BRS	L2	4	shelley.in. and cheng.in.	USPAT	2004/03/09 09:15
3	BRS	L3	9135	filter\$4 near4 fram\$3	USPAT	2004/03/09 09:25
4	BRS	L4	1689	3 and network	USPAT	2004/03/09 09:16
5	BRS	L5	926	4 and buffer	USPAT	2004/03/09 09:16
6	BRS	L6	273	5 and (mac or media near2 control)	USPAT	2004/03/09 09:25
7	BRS	L7	166	6 and @ad<=19980326	USPAT	2004/03/09 09:24
8	BRS	L8	5677	filter\$4 near2 fram\$3	USPAT	2004/03/09 09:25
9	BRS	L9	337	8 and (mac or media near2 control)	USPAT	2004/03/09 09:25
10	BRS	L10	2582	buffer near2 manag\$4	USPAT	2004/03/09 09:34
11	BRS	L11	36	9 and 10	USPAT	2004/03/09 09:26
12	BRS	L12	29	11 and @ad<=19980326	USPAT	2004/03/09 09:34
13	BRS	L13	27520	buffer near2 (control\$4 or manag\$4)	USPAT	2004/03/09 09:34
14	BRS	L14	89	9 and 13	USPAT	2004/03/09 09:34
15	BRS	L15	73	14 and @ad<=19980326	USPAT	2004/03/09 11:11
16	BRS	L16	3329	dual adj port near4 memory	USPAT	2004/03/09 09:42
17	BRS	L17	6	16 and 15	USPAT	2004/03/09 09:43
18	BRS	L18	128502	(read or reading) same (write or writing)	USPAT	2004/03/09 11:08
19	BRS	L19	941	3 and 18	USPAT	2004/03/09 09:43
20	BRS	L20	699	19 and @ad<=19980326	USPAT	2004/03/09 11:00
21	BRS	L21	14118	18 same simultan\$6	USPAT	2004/03/09 11:09
22	BRS	L22	133	20 and 21	USPAT	2004/03/09 09:44
23	BRS	L23	32	22 and 13	USPAT	2004/03/09 10:37
24	BRS	L24	210	16 same network	USPAT	2004/03/09 10:37
25	BRS	L25	153	24 and 18	USPAT	2004/03/09 10:37

	Comments	Error Definition	Errors
1			0
2			0
3			0
4			0
5			0
6			0
7			0
8			0
9			0
10			0
11			0
12			0
13			0
14			0
15			0
16			0
17			0
18			0
19			0
20			0
21			0
22			0
23			0
24			0
25			0

	Type	L #	Hits	Search Text	DBs	Time Stamp
26	BRS	L26	1	24 and 6	USPAT	2004/03/09 10:38
27	BRS	L27	45	24 and 21	USPAT	2004/03/09 10:38
28	BRS	L28	26	27 and frame	USPAT	2004/03/09 10:46
29	BRS	L29	16752	port near4 memory	USPAT	2004/03/09 11:00
30	BRS	L30	4038	29 same 18	USPAT	2004/03/09 10:46
31	BRS	L31	23749	29 amd 20	USPAT	2004/03/09 10:46
32	BRS	L32	173	29 and 20	USPAT	2004/03/09 10:46
33	BRS	L33	55	32 and 21	USPAT	2004/03/09 10:49
34	BRS	L34	9721	port near2 memory	USPAT	2004/03/09 11:00
35	BRS	L35	1958	34 and 21	USPAT	2004/03/09 11:00
36	BRS	L36	67	35 and 3	USPAT	2004/03/09 11:00
37	BRS	L37	46	36 and @ad<=19980326	USPAT	2004/03/09 11:00
38	BRS	L38	112862	(read or reading) near8 (write or writing)	USPAT	2004/03/09 11:09
39	BRS	L39	5197	38 near8 simultan\$6	USPAT	2004/03/09 11:09
40	BRS	L40	1198	39 and 29	USPAT	2004/03/09 11:09
41	BRS	L41	41	40 and 3	USPAT	2004/03/09 11:09
42	BRS	L42	2	40 and 6	USPAT	2004/03/09 11:10
43	BRS	L43	345	40 and 13	USPAT	2004/03/09 11:10
44	BRS	L44	257	43 and @ad<=19980326	USPAT	2004/03/09 11:11
45	BRS	L45	46	44 and network near3 (card or interfac\$3)	USPAT	2004/03/09 11:11
46	BRS	L46	49	44 and (ethernet or atm or network) near3 (card or interfac\$3)	USPAT	2004/03/09 11:12
47	BRS	L47	3	46 not 45	USPAT	2004/03/09 11:12
48	BRS	L48	1	44 and 39 same (ethernet or atm or network) near3 (card or interfac\$3)	USPAT	2004/03/09 11:12

	Comments	Error Definition	Errors
26			0
27			0
28			0
29			0
30			0
31			0
32			0
33			0
34			0
35			0
36			0
37			0
38			0
39			0
40			0
41			0
42			0
43			0
44			0
45			0
46			0
47			0
48			0

One of the significant advantages of the portal of the present invention is that it utilizes a dual port memory and a DMA transfer controller for moving either Ethernet or ATM data directly into this shared memory where header data is appropriately associated or disassociated therewith, and then out again to its destination under control of a microprocessor. With this hardware and methodology, the need to copy data cells is eliminated thereby dramatically decreasing the processing required by the portal and increasing the data throughput rate. As mentioned above, the rapid data throughput rate of the portal renders the ATM network connection transparent between Ethernet segments which may be separated by large distances. Of course this is a highly desirable feature and, in some applications, a requirement for the ATM network connection to be a useful interconnection scheme.

Brief Summary Text - BSTX (6):

With only minor modifications, the portal of the present invention may be extended to function as an ATM-Ethernet concentrator. As a concentrator, the device will multiplex a plurality of Ethernet controllers, each of which is associated with its own Ethernet segment, and provide connectivity between the plurality of Ethernet controllers and other Ethernet controllers/segments through an ATM network. Essentially, instead of a single Ethernet controller as is found in the portal, a common bus interconnects a plurality of Ethernet controllers to the concentrator which multiplexes their output and demultiplexes data being input. For larger concentrators for use with more Ethernet controllers, a wider bus and faster control microprocessor are utilized. The concentrator of the present invention, as with the portal, permits a transparent interconnection between local and remote Ethernet controllers/segments, and its operation is enhanced through the use of a dual port shared memory, DMA controller, and control microprocessor as is included in the portal design.

Detailed Description Text - DETX (19):

The design uses a dual-port memory (FIG. 3) to reduce bus contention and thereby improve performance. Shared memory arbitration prevents the simultaneous access of more than one component to the same memory location, while allowing simultaneous access to different memory locations. With this memory, the Ethernet controller can write an incoming frame or read an outgoing frame, or the microprocessor can access data, concurrent with DMA transfers to and from the ATM cell processor. Since these operations occur on different busses, they do not interfere with one another. The design does not preclude use of a single-port memory in place of the dual-port memory. However, degraded performance may result under peak loads (due to bus contention) if such a component is chosen.

Detailed Description Text - DETX (42):

To reduce the number of Ethernet frames flowing over the ATM multipoint connection, the portal filters incoming frames whose destination addresses are known to be on the local segment. Whenever an Ethernet frame arrives from the local segment, the portal examines the destination address to see if it is in a list of addresses known to be on the local segment. The addresses in this list are either loaded by the CP (in unsophisticated portals) or "learned" by the portal. The portal learns new addresses by examining the source address of each frame received from the local segment and placing this address in the list of known addresses (if it is not already present). Filtering has two advantages: 1) the number of frames on each local segment is reduced since only intersegment frames are ever transmitted to all segments, and 2) the aggregate load of all segments can exceed the capacity of any one Ethernet segment since no one segment ever receives all Ethernet frames.

Detailed Description Text - DETX (44):

With minor modifications, the portal can be extended to function as an ATM-Ethernet concentrator, a device that multiplexes many Ethernet controllers and subnetworks onto an ATM link and that transfers Ethernet frames between

Document	Page	Current	Current	XR	S	PT
1	US 6496869	12	709/250	370/463		
2	US 6356555	110	370/441	370/442		
3	US 6307868	127	370/485	370/516		
4	US 6175571	38	370/423	370/465		
5	US 6108015	10	345/519	345/536		
6	US 5991308	161	370/395	370/342		
7	US 5963675	28	382/260	382/261		
8	US 5870097	109	345/426	345/422		
9	US 5815501	25	370/402	370/466		
10	US 5812792	48	709/249	709/200		
11	US 5793759	65	370/342	370/441		
12	US 5684534	40	375/240	375/240.03		
13	US 5655140	37	709/246	709/249		
14	US 5604867	38	709/233	709/234		
15	US 5592399	42	709/247	709/204		
16	US 5560038	37	709/236			
17	US 5469208	41	348/27	375/240.04		
18	US 5457681	26	370/402	370/466		
19	US 5446839	43	345/502	345/531		
20	US 5426462	39	375/240			
21	US 5412481	32	386/19	348/571		
22	US 5386233	51	375/240	348/718		
23	US 5329318	38	348/699	375/240.16		
24	US 5233421	8	348/571	348/458		
25	US 5227863	83	348/578	345/723		
26	US 5155852	36	718/100	382/304		
27	US 5128747	46	348/470	348/607		
28	US 5031036	36	348/71	348/578		
29	US 5025309	49	375/240			
30	US 4979020	45	348/433			
31	US 4949167	44	348/434	348/436.1		
32	US 4912549	61	348/496	348/473		
33	US 4910585	44	348/386			
34	US 4888795	48	348/14	348/14.12		
35	US 4884127	44	348/436			
36	US 4866521	44	348/436			
37	US 4855824	44	348/434			
38	US 4855811	42	348/434	348/433.1		
39	US 4853766	34	375/240			
40	US 4839720	28	375/240			
41	US 4837735	266	706/10	700/4		
42	US 4821226	15	365/230	365/221		
43	US 4816899	29	375/240			
44	US 4789960	14	345/534	345/519		
45	US 4782383	27	375/240			
46	US 4602275	27	348/450	348/715		